

# **The Status of Water Quality in Arizona – 2002**

## **Volume I. Arizona's Integrated 305(b) Assessment and 303(d) Listing Report**





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## Further Monitoring, Assessment, and TMDL Information

**ADEQ's Web Site** – Current information about programs and status of many projects can be downloaded from ADEQ's Web Site: <http://www.adeq.az.us>

**ADEQ's Programs** -- Further information about water quality ambient monitoring data, standards, and assessments can be obtained by contacting the following ADEQ program staff:

Assessments: Diana Marsh (602) 771-4545  
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A more comprehensive list of water quality protection programs is provided in the final appendix of this report (**Appendix E**).

**Other Agencies** -- Data was also obtained from a variety of sources outside the agency. Contact the following agencies to obtain further information about their monitoring programs or copies of their data:

Arizona Department of Water Resources - Basic Data (602) 417-2457  
 Arizona Game and Fish Department (602) 789-3260  
     Urban Lakes Program (602) 789-3268  
 Arizona State Parks  
     Slide Rock State Park (520) 639-2962  
 Environmental Protection Agency Region IX (San Francisco)  
     303(d) and TMDL's (415) 972-3416 (Dave Smith)  
     305(b) Assessments (415) 972-3462 (Terry Fleming)  
     Standards Development (415) 972-3498 (Gary Wolinsky)  
     Nonpoint Source (415) 972-3444 (Ephraim Leon-Guerrero)  
 Mohave County Health Department (Lake Havasu) (520) 453-0712  
 National Parks Service  
     Glen Canyon National Recreation Area (520) 608-6377  
     Grand Canyon National Park (520) 638-7905 (John Rihs)  
 Salt River Project (602) 236-5900 (Greg Elliott)  
 Southern Nevada Water Authority (702) 258-3948 (Jeff Johnson)  
 US Army Corps of Engineers (213) 452-3529 (Robert Stewart)  
 US Bureau of Land Management/Phoenix (602) 580-5500 (Jim Renthal)  
 US Bureau of Reclamation  
     Colorado Grand Canyon (520) 556-7051  
     Upper Colorado Region (801) 524-3700 (Jerry Miller)  
     Lake Powell (928) 608-6377 (Mark Anderson)  
 US Fish and Wildlife Service (602) 640-2720 (Kirke King)  
 US Forest Service  
     Apache-Sitgreaves National Forest (928) 333-4301  
     Coconino National Forest (520) 527-3600  
     Coronado National Forest (520) 670-4552 (Robert Lafevre)  
     Kaibab National Forest (928) 635-8200 (Dave Brewer)  
     Prescott National Forest (928) 567-4121 (Michelle Girard)  
     Tonto National Forest (602) 225-5200 (Grant Loomis)  
 US Geological Survey (480) 379-3087 (Cheryl Partin)  
     NAWQA (520) 670-6135 (x223) (Gail Cordy)

## Table of Contents

I. Arizona's Integrated Assessment and Listing Process	Page	Status of new federal regulations and guidance	I - 1
Why do we write this report?	I - 1	New state statutes and impaired waters rules take hold	I - 3
		Changes in the assessment process	I - 3

II. Water? All I See are Dry River Beds!	II - 1
Arizona's ecologic, hydrologic, and geographic diversity	II - 1
Watershed, Hydrologic Unit Code areas, and basins	II - 8
III. How are Water Quality Assessments Performed	III - 1
Do all waters have to meet the same standards?	III - 1
Do some waters have special standards to meet?	III - 2
How does ADEQ assess a surface water?	III - 6
Assessments criteria	III - 7
How much of a lake or stream is assessed?	III - 11
How do lake and stream assessments differ?	III - 11
Public availability of monitoring data	III - 12
IV. How Clean is Surface Water in Arizona	IV - 1
Water quality in rivers, canals, and washes	IV - 1
Water quality in lakes and reservoirs	IV - 4
What pollutants impair Arizona's lakes and streams?	IV - 6
What are the major sources of these pollutants?	IV - 8
A few words about point and nonpoint sources	IV - 11
Is the Water Safe to Drink, Swim In, and Fish From?	IV - 11
V. Surface Water Assessment, Impaired Waters 303(d) List Submission, and the Planning List	V - 1
Five-part assessment list	V - 1
Assessment tables, the planning list, and the status of surface waters on the 1998 303(d) List	V - 2
2002 303(d) Submission to EPA	V - 51
VI. Ground Water Quality: Out of Sight Not Out of Mind	VI - 1
How good is Arizona's ground water quality?	VI - 1
How does ADEQ characterize ground water?	VI - 1
Do ground water and surface water contamination problems differ?	VI - 5
VII. What is Arizona Doing About Water Quality Problems?	VII - 1
How to Assess a Big State With Limited Resources	VII - 1
What happens after a surface water is assessed as impaired?	VII - 7
Cleaning up contaminated sites.	VII - 10
How is Arizona working with Mexico to improve water quality?	VII - 15

A. Acronyms, Abbreviations, Definitions and Units of Measure
B. Arizona's New TMDL Statute and Impaired Waters Identification Rules
C. Arizona's Surface and Ground Water Quality Standards
D. Five-part Assessment List
E. Arizona Water Quality Protection Programs

## APPENDICES



## TABLES

	Page
1. EPA Requested Data and Information	I - 2
2. Arizona Atlas	II - 2
3. An Estimate of Arizona's Water Resources	II - 5
4. Hydrologic Unit Code (HUC) Drainage Area Names	II - 10
5. Core Parametric Coverage	III - 9
6. Trophic Classification Thresholds	III - 11
7. Use Support Summary – Streams Assessed 2002	IV - 3
8. Use Support Summary – Lakes Assessed 2002	IV - 5
9. Pollutants Impairing Arizona's Streams – 2002 Assessment	IV - 6
10. Pollutants Impairing Arizona's Lakes – 2002 Assessment	IV - 7
11. Probable Sources of Stream Pollutants – 2002 Assessment	IV - 9
12. Probable Sources of Lake Pollutants – 2002 Assessment	IV - 10
13. Point and Nonpoint Source Contribution to Impairment – 2002	IV - 11
14. Swimming Area Closures – 1999-2001	IV - 12
15. Fish Consumption Advisories	IV - 12
16. Reported Fish Kills – 1997-2000	IV - 13
17. Assessment, Planning List, and Status of 303(d) List – Bill Williams Watershed	V - 4
18. Assessment, Planning List, and Status of 303(d) List – Colorado-Grand Canyon Watershed	V - 7
19. Assessment, Planning List, and Status of 303(d) List – Colorado-Lower Gila Watershed	V - 11
20. Assessment, Planning List, and Status of 303(d) List – Little Colorado-San Juan Watershed	V - 13
21. Assessment, Planning List, and Status of 303(d) List – Middle Gila Watershed	V - 18
22. Assessment, Planning List, and Status of 303(d) List – Salt Watershed	V - 26
23. Assessment, Planning List, and Status of 303(d) List – San Pedro-Willcox Playa-Rio Yaqui Watershed	V - 30
24. Assessment, Planning List, and Status of 303(d) List – Santa Cruz-Rio Magdalena-Rio Sonoyta Watershed	V - 34
25. Assessment, Planning List, and Status of 303(d) List – Upper Gila Watershed	V - 39
26. Assessment, Planning List, and Status of 303(d) List – Verde Watershed	V - 43
27. 2002 303(d) List TMDL Priority Ranking and Schedule	V - 53
28. Statewide Ground Water Monitoring – Oct. 1995-Oct. 2000	VI - 3
29. Arizona's Watershed Schedule	VII - 5
30. Federal National Priority List (Superfund Sites)	VII - 10
31. Department of Defense Sites	VII - 10
32. WQARF Sites (State Superfund Sites)	VII - 11

## 33. RCRA Remediation Sites

VII - 13

## FIGURES

	Page
1. Arizona's Ecosystems	II - 3
2. Arizona's Hydrologic Provinces	II - 3
3. Land Ownership Categories in Arizona	II - 6
4. Perennial Streams in Arizona	I - 6
5. Mean Annual Precipitation Distribution in Arizona	II - 7
6. Mean Annual Temperature Distribution in Arizona	II - 7
7. Hydrologic Unit Code Areas in Arizona	II - 9
8. Arizona's Surface Water Basins	II - 11
9. Arizona's Watersheds	II - 11
10. Arizona's Ground Water Basins	II - 12
11. Unique Waters in Arizona	III - 3
12. Effluent Dependent Water in Arizona	III - 4
13. 2002 Assessment Process Diagram	III - 8
14. Reach Delineation	III - 11
15. Use Support Assessments – Streams	IV - 1
16. Designated Use Support by Category – Streams	IV - 1
17. Surface Water Quality Assessments in Arizona	IV - 2
18. Use Support Assessments – Lakes	IV - 4
19. Designated Use Support by Category – Lakes	IV - 4
20. Pollutants Impairing Streams	IV - 6
21. Pollutants Impairing Lakes	IV - 7
22. Probable Sources of Pollutants in Streams – 2002	IV - 9
23. Probable Sources of Pollutants in Lakes – 2002	IV - 10
24. Five-part Assessment List	V - 1
25. ADEQ's Ground Water Basin Studies as of 2001	VI - 1
26. Index Wells Exceeding an Aquifer Water Quality Standard	VI - 4
27. Fixed Long-term Monitoring Sites in Arizona	VII - 3
28. Status of TMDL Development in Arizona – 2002	VII - 8
29. Arizona's State and Federal Superfund Remediation Sites – 2001	VII - 12
30. RCRA Remediation Sites in Arizona	VII - 14
31. Arizona's United States-Mexico Border Project Area	VII - 16





# I. Arizona's 2002 Integrated Assessment and Listing Process

## Why do we write this report?

This biennial report consolidates reporting requirements under the federal Clean Water Act sections 305(b) (assessments), 303(d) ("impaired" waters list), 106 (monitoring), 204 (grants), 319 (nonpoint source), and 314 (lakes program). It incorporates recommendations made in the Environmental Protection Agency's (EPA) 2002 *Integrated Water Quality Monitoring and Assessment Report Guidance* issued in November 2001. This report also provides information required in Arizona's new state statute (Arizona Revised Statute 49-231 through 49-238) and new state Impaired Waters Identification rules (Arizona Administrative Code R11-18-601 through 606).

In addition, Arizona Department of Environmental Quality (ADEQ) recognizes that this report can provide many state and federal agencies, organizations, and interested parties with a current reference document on the status of surface and ground water quality in Arizona. The following objectives are fulfilled by the publication of this water quality assessment report:

- Report on statewide surface and ground water quality in Arizona (excluding tribal lands);
- Identify and delineate all surface waters assessed;
- Identify the status of designated use support for individual surface waters based on numeric or narrative water quality standards;
- Document the basis for ground water and surface water assessment determinations;
- Identify pollutants or water quality characteristics that cause impairment;
- Identify possible sources of identified pollutants;
- Indicate where standards are exceeded solely due to natural conditions;
- Describe the state's monitoring program and progress toward achieving comprehensive assessments for all surface waters;
- Identify where additional monitoring may be needed to complete assessments (new Planning List) or support the development of Total Maximum Daily Load (TMDL) analyses, including a schedule for this monitoring;
- Identify and prioritize where additional TMDLs need to be completed;
- Provide opportunity for public review and respond to comments concerning assessments and the state's 303(d) listing proposals;
- Provide information to the public and other agencies regarding:
  - ADEQ's ongoing water quality improvement activities;
  - Regulatory programs to protect and improve water quality; and

Available water quality data and related studies in Arizona.

This report was written to be understandable for both technical and nontechnical audiences. Technical terms, acronyms, and abbreviations used in this document are defined in **Appendix A**. Additional appendices in Volume I and monitoring tables in Volume II contain more detailed information referenced by technical staff.

## Status of new federal regulations and guidance.

**New Federal Regulations** -- The new federal regulations pertaining to listing impaired waters and completing TMDLs, scheduled to go into effect in October 2001, have been deferred by EPA, and were not used in this assessment.

**New Federal Guidance** -- In November 2001, EPA issued "2002 Integrated Water Quality Monitoring and Assessment Report Guidance" concerning the development and submission of the 2002 305(b) water quality report and the 303(d) List of impaired waters. This guidance recommended that states submit an integrated water quality assessment report that included the state's 303(d) listed waters. **Table 1** indicates the information EPA requested, and where this information can be found in this report.

**Table 1. EPA Requested Data or Information**

Data or Information Requested	Data or Information Provided in This Report
Geographic delineations of each surface water assessed based on the new National Hydrography Dataset	Arizona is providing a GIS coverage which is compatible with and can be converted to the National Hydrography Dataset.
Status of and progress toward achieving comprehensive assessments of all waters.	Chapter IV provides statewide status of surface water quality assessments and Chapter Vi provides an overview of ground water quality assessments. Chapter VII describes how ADEQ's monitoring programs are being modified to achieve more comprehensive assessments.
Water quality standard attainment determinations for each surface water assessed.	Volume II provides detailed monitoring tables for each surface water assessed arranged by watershed. These tables clearly indicate the basis for each assessment. Individual surface water quality assessments are provided in Volume I, Chapter V.
Identify additional monitoring that may be needed to determine water quality standard attainment status and, if necessary, to support development of TMDLs.	The assessment table in Chapter V indicates whether a surface water will be on the Planning List or TMDL list and the pollutant(s) of concern. Monitoring activities are being developed based on this table.
Schedules for additional monitoring planned for each surface water assessed.	Chapter VII describes ADEQ's monitoring programs, how these programs are integrated within the agency and with other agencies, and how waters on the Planning List will be prioritized for monitoring.
Surface waters and pollutants still requiring TMDLs	Chapter V and Appendix D identify all assessed waters according to five categories and indicate the pollutant(s) of concern. Category 5 indicates impaired waters requiring a TMDL.
TMDL development schedules reflecting the priority ranking of each surface water and/or pollutant combination.	Chapter V, Table 27 identifies the priority ranking and a schedule for completing TMDLs for each pollutant impairing a surface water.
A description of the assessment and listing methodology used to develop Clean Water Act section 303(d) Lists and section 305(b) Assessments.	Chapter III describes the assessment and listing methods used. Appendix B provides a copy of the Impaired Waters Identification Rules and Arizona's statute concerning the listing process and TMDL development.
A description of the public participation process involved in developing the 303(d) list.	The public participation process is described in Chapter V.

In accordance with EPA's November 2001 guidance, Arizona has made a number of structural changes in how it identifies categories of surface waters. EPA guidance suggests that surface waters be placed on the following five-part

list of surface waters depending on the sufficiency of data and number of exceedances as defined in Arizona's assessment and listing methods (see discussion in Chapter III).

- Part 1. Surface waters where all water quality standards are being attained.
- Part 2. Surface waters are attaining some designated uses but there is insufficient data to assess the remaining uses. Surface waters assessed as "threatened" are included in this part.
- Part 3. Surface waters with insufficient data to assess any designated use.
- Part 4. Surface waters are assessed as "not attaining" one or more designated use but a Total Maximum Daily Load (TMDL) analysis will not be required for one of the following reasons:
  - 4 A. A TMDL has already been completed and approved by EPA but the water quality standards are not yet being attained.
  - 4 B. Other pollution control requirements are reasonably expected to result in the attainment of water quality standards by the next regularly scheduled listing cycle.
  - 4 C. The impairment is not related to a "pollutant" loading but rather caused by "pollution" (e.g., hydrologic modification).
- Part 5. Surface waters are impaired for one of more designated uses by a pollutant and require development of a TMDL.

Note that Arizona is including "threatened" waters in Part 2 rather than Part 5 until federal regulations clarify whether "threatened" waters must be included on the 303(d) List of impaired waters. Assessment criteria are described in Chapter III. Chapter V relates these five categories to monitoring priorities.

## New state statutes and impaired waters identification rules take hold.

Since the last assessment report was issued in 2000, new state statutes and regulations have been adopted which regulate the identification of impaired waters and the prioritization and completion of Total Maximum Daily Load (TMDL) analyses.

### A Total Maximum Daily Load Analysis (TMDL)

A TMDL is a written, quantitative plan and analysis to determine the maximum loading on a pollutant basis that a surface water can assimilate and still attain and maintain a specific water quality standard during all conditions. The TMDL allocates the loading capacity of the surface water to point sources and nonpoint sources identified in the watershed, accounting for natural background levels and seasonal variation, with an allocation set aside as a margin of safety.

**New State Statutes** -- In 2000, Arizona Revised Statute Title 49, sections 231-238 was adopted (**Appendix B**), establishing requirements for identifying impaired waters which require TMDL analyses and for development of TMDLs. For 303(d) listing decisions, the statute requires that ADEQ:

- Adopt, by rule, the methods used to identify “impaired” waters;
- Use only reasonable current credible and scientifically defensible data;
- Consider the nature of the water (e.g., ephemeral, intermittent, or perennial) in assessing whether a surface water is impaired;
- Determine whether pollutant loadings solely from naturally occurring conditions are sufficient to exceed a water quality standard, and if so the surface water is not listed as “impaired”;
- Must adopt narrative implementation procedures through a public process before using narrative standards to identify impaired waters. These procedures must identify the objective basis for determining a narrative or biological standard violation; and
- Review all surface waters on the current 303(d) List (approved 1998) to determine whether the data fulfills requirements established in the new impaired waters identification rules (credible and sufficient data requirements, etc.). If the data used to list the water or more current data do not meet the requirements of the new rule, ADEQ cannot place the surface water on the 2002 303(d) List.
- Instead of assessing a surface water as in “full,” “full but threatened,” “partial,” or “non-support” of its designated uses, a surface water is

**New Impaired Waters Identification Rules** -- ADEQ developed Impaired Waters Identification Rules (R18-11-601 through R18-11-606) (**Appendix B**) as required in the state statute discussed above. These rules establish the following:

- “Credible data” criteria;
- Data submission and record keeping;
- General data interpretation requirements;
- Criteria for placing a surface water on the Planning List for further monitoring;
- Criteria for identifying surface waters as impaired and placing it and identified pollutants on the 303(d) List;
- Criteria for removing a pollutant or surface water from the 303(d) List; and
- Criteria for prioritizing the 303(d) listed waters for TMDL development.

## Changes in the assessment process

In previous water quality reports, ADEQ assessed surface waters using one set of assessment criteria, and then applied a separate set of criteria to determine which surface waters merited being identified as “impaired” and included on the 303(d) List. This was a two-step process that allowed ADEQ to do “evaluated” assessments based on limited monitoring data and screening values for narrative standards (e.g., contaminated sediment, fish kills, fish tissue contamination). In many cases the data was insufficient to support a 303(d) listing. However, using two sets of criteria has been confusing to the public. To eliminate this confusion and to follow new EPA guidance on consolidating the two processes, ADEQ merged the assessment and 303(d) listing criteria so that any surface water assessed as “impaired” will be included on the 303(d) List.

A desire to minimize potential erroneous assessments has also resulted in several significant changes in the monitoring, assessment, and the 303(d) listing process.

The amended monitoring program is discussed in Chapter VII and the new assessment and listing process is discussed in Chapters III and V in more detail. The most significant changes in the process are:

- All data used for assessments must meet “credible data” requirements established in the Impaired Waters Identification Rule.
- assessed as either “attaining,” “impaired,” “not attaining,” or “inconclusive.”

- Instead of a minimum of two samples, adequate data for assessments must meet the following requirements:
  - To assess as “attaining” uses, collect samples at a minimum of three (3) monitoring events that provide seasonal representation and core parametric coverage for the designated uses assigned to that surface water; or
  - To assess as “impaired,” collect a sufficient number of samples to meet the test of impairment identified in the Impaired Waters Identification Rule.
- To apply narrative standards to the listing process, state statute requires that the Department must first adopt narrative implementation procedures for each narrative standard through a public process. ADEQ is still in the process of developing these documents, and therefore, was not able to list any surface water as impaired solely on the basis of narrative standard violations.